

# Water Metering

## EW171

### Woltman Bulk Water Meters

DN50 - DN300 for Cold and Warm Potable Water Applications

#### Application

EW171 Series Woltman water meters are used for volume measurement of cold or warm water in potable water networks. They are available for cold water up to 30°C (EW1710) or for warm water up to 130°C (EW1711).

They have a mechanical counter with rollers and dials and can be equipped with clip-on modules for remote readout applications. Clip-on modules are available for wired M-Bus, and pulse out. The clip-on modules are retrofittable.

Water meters are used to record the consumption of drinking water and are exclusively intended for this purpose. Any other use of the device is considered to be improper. Changes to the unit must be approved.

#### Approvals

EW171 Series bulk water meters have MID approval under approval number SK08NI001\_SMU002 (for cold water) and SK10-MI001\_SMU013 (for warm water).

#### Special Features

- Suitable for horizontal and vertical installation
- Low pressure loss
- Rugged design for longterm accuracy
- Retrofittable clip-on modules for remote readout

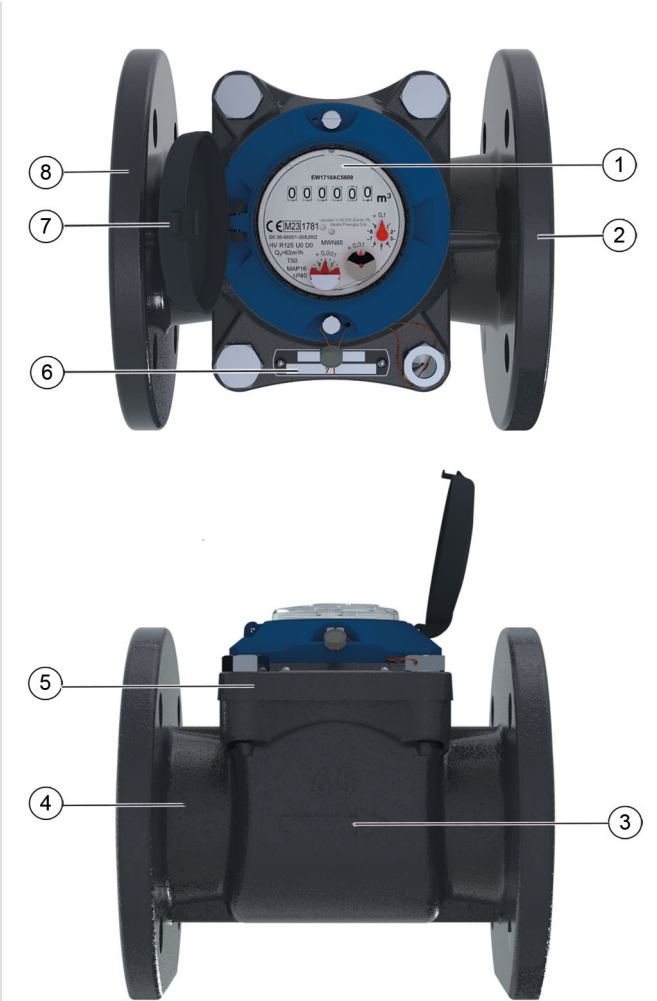


Technical Data

| Media                     |                                                                |
|---------------------------|----------------------------------------------------------------|
| Medium:                   | Drinking water                                                 |
| Connections               |                                                                |
| Sizes:                    | DN50...300<br>Q3 40...1.600 (EW1710)<br>Q3 25...1.000 (EW1711) |
| Operating temperatures    |                                                                |
| Medium temperature:       | EW1710: 0.1...30°C EW1711: 0.1...130°C                         |
| Temperature class:        | EW1710: T30, T50 EW1711: T130                                  |
| Ambient temperature:      | 5 - 55 °C                                                      |
| Specifications            |                                                                |
| Water pressure class:     | MAP16 (max. 16 bar)                                            |
| Operating pressure range: | 0.3...16bar                                                    |
| Pressure loss class:      | ΔP16 (max. 16kPa)                                              |
| Protection class:         | IP66                                                           |
| Environmental class:      | B                                                              |

| Specifications         |                                                                                                                                                     |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Mechanical class:      | M1                                                                                                                                                  |
| Electromagnetic class: | E1                                                                                                                                                  |
| Measuring process:     | Mechanical counter with Woltman<br>WP type flow measurement                                                                                         |
| Display:               | Six-digit roller counter with three dials for decimal places                                                                                        |
| Display unit:          | m <sup>3</sup>                                                                                                                                      |
| Display range:         | DN50...125: 106 m <sup>3</sup><br>DN150...300: 107 m <sup>3</sup>                                                                                   |
| Increments:            | DN50...125: 0.0005 m <sup>3</sup><br>DN150...250: 0.005 m <sup>3</sup><br>DN300: 0.05 m <sup>3</sup>                                                |
| Acceptable error:      | ±5% (Q <sub>1</sub> ≤Q≤Q <sub>2</sub> )<br>±2% (Q <sub>2</sub> ≤Q≤Q <sub>4</sub> for 0.1≤T≤30°C<br>±3% (Q <sub>2</sub> ≤Q≤Q <sub>4</sub> for T>30°C |
| Installation position: | H, V (horizontal, vertical)                                                                                                                         |

Construction

| Overview                                                                          | Components                                                    | Materials                                               |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------|
|  | 1 Counter lid<br>Register with roller counter and reed switch | -                                                       |
|                                                                                   | 2 Outlet                                                      | -                                                       |
|                                                                                   | 3 Flow arrow and DN size                                      | -                                                       |
|                                                                                   | 4 Housing                                                     | Cast iron, painted grey, with flanges to EN 1092-2 PN16 |
|                                                                                   | 5 Top cover                                                   | Cast iron, painted grey                                 |
|                                                                                   | 6 Serial number                                               | -                                                       |
|                                                                                   | 7 Counter lid                                                 | -                                                       |
|                                                                                   | 8 Inlet                                                       | -                                                       |

## Method of Operation

### Counter

The counter contains a five-digit roller counter for values of whole m<sup>3</sup> and dials for tenth, hundredth and thousandth parts of m<sup>3</sup>. It is flanged to the flow sensor housing. Displayed value is cumulative (total) flow through the meter.

- Six-digit roller counter with three dials for decimal places
- Item number, approval number and key technical data according to requirements of MID
- Set into black plastic collar with lid

### Flow Sensor

The Woltman technology of the flow sensor combines high measuring accuracy with long term stability and the capability of measuring high volumes at low pressure drop. The Woltman wheel is connected to the counter by a shaft and a magnetic coupling.

- Flanged flow sensor housing painted grey with DN size and flow arrow embossed on side

## Installation Guidelines

### Setup requirements

- Calming legs are not required unless bends, pumps or self-acting valves are placed before or after the meter. In such cases calming legs of straight pipe with a minimum length of 6 x DN before and 2 x DN after the meter are required
- All sizes may be installed in either horizontal or vertical position
- The meter must be installed with the counter facing up or sideways. It must not be installed with the counter facing downwards
- Avoid installation at highest point of system as air may be trapped in the meter
- During measurement the meter must be completely filled with water

## Technical Characteristics

### Flow Data

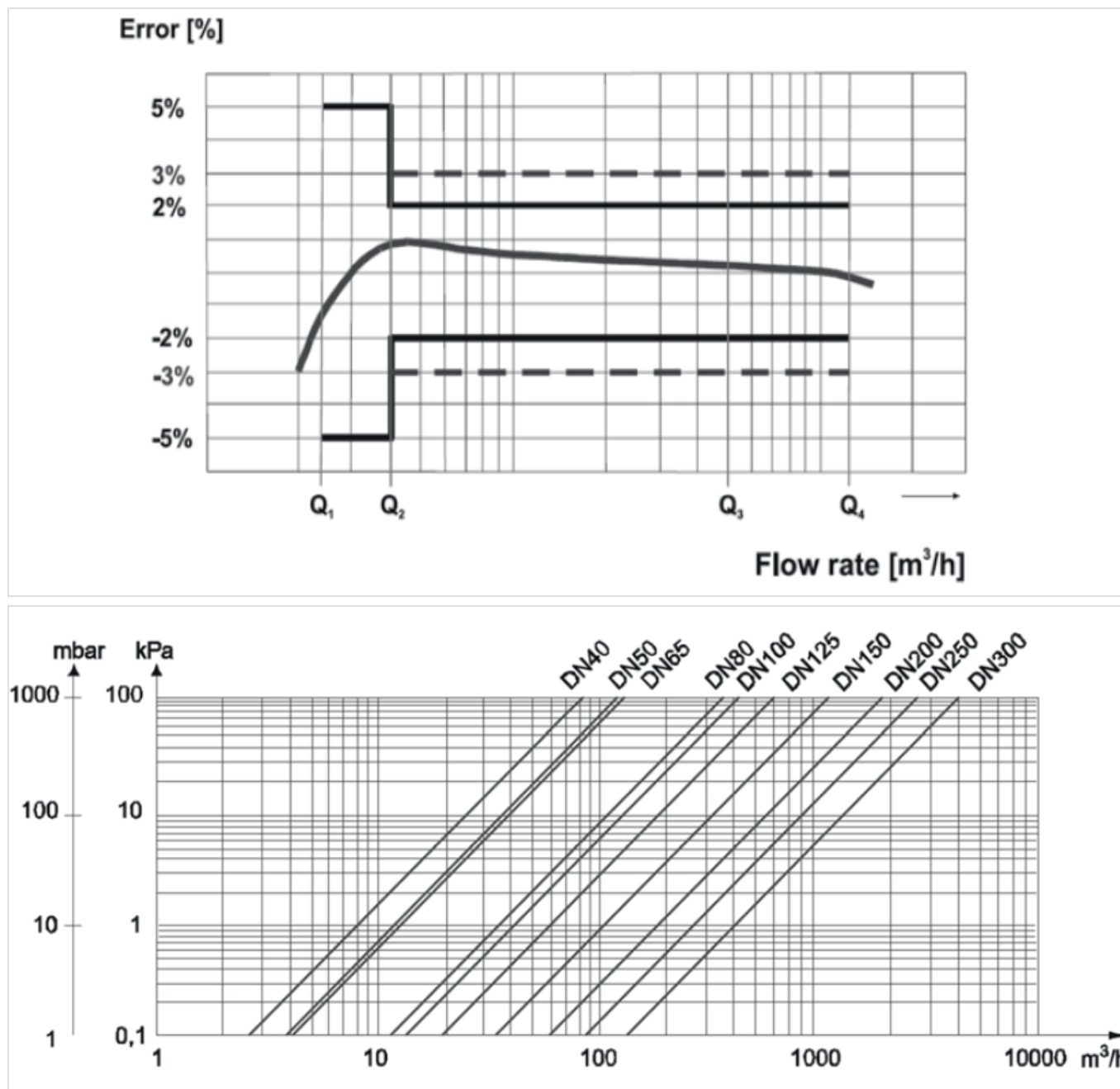
#### EW1710, for cold water applications

| Nominal size diameter:                           | DN                     | 50        | 65        | 80         | 100        | 125        | 150        | 200        | 250         | 300         |
|--------------------------------------------------|------------------------|-----------|-----------|------------|------------|------------|------------|------------|-------------|-------------|
| <b>Flow rates</b>                                |                        |           |           |            |            |            |            |            |             |             |
| Minimum (Q <sub>1</sub> ):                       | m <sup>3</sup> /h      | 0.4       | 0.5       | 0.63       | 0.8        | 1.6        | 2          | 5          | 10          | 16          |
| Transition (Q <sub>2</sub> ):                    | m <sup>3</sup> /h      | 0.64      | 0.8       | 1          | 1.3        | 2.5        | 3.2        | 8          | 16          | 26          |
| <b>Permanent (Q<sub>3</sub>):</b>                | <b>m<sup>3</sup>/h</b> | <b>40</b> | <b>63</b> | <b>100</b> | <b>160</b> | <b>250</b> | <b>400</b> | <b>630</b> | <b>1000</b> | <b>1600</b> |
| Overload (Q <sub>4</sub> ):                      | m <sup>3</sup> /h      | 50        | 78.8      | 125        | 200        | 313        | 500        | 788        | 1250        | 2000        |
| Dynamic range (Q <sub>3</sub> /Q <sub>1</sub> ): |                        | R100      | R125      | R160       | R200       | R160       | R200       | R125       | R100        | R100        |
| <b>Additional flow data</b>                      |                        |           |           |            |            |            |            |            |             |             |
| Starting flow:                                   | m <sup>3</sup> /h      | 0.15      | 0.2       | 0.25       | 0.25       | 0.5        | 1.0        | 1.5        | 3           | 8           |

#### EW1711, for warm water applications

| Nominal size diameter:                           | DN                     | 50        | 65        | 80        | 100        | 125        | 150        | 200        | 250        | 300         |
|--------------------------------------------------|------------------------|-----------|-----------|-----------|------------|------------|------------|------------|------------|-------------|
| <b>Flow rates</b>                                |                        |           |           |           |            |            |            |            |            |             |
| Minimum (Q <sub>1</sub> ):                       | m <sup>3</sup> /h      | 0.63      | 1         | 1.58      | 2.5        | 4          | 6.3        | 10         | 25         | 40          |
| Transition (Q <sub>2</sub> ):                    | m <sup>3</sup> /h      | 1         | 1.6       | 2.5       | 4          | 6.4        | 10         | 16         | 40         | 64          |
| <b>Permanent (Q<sub>3</sub>):</b>                | <b>m<sup>3</sup>/h</b> | <b>25</b> | <b>40</b> | <b>63</b> | <b>100</b> | <b>160</b> | <b>250</b> | <b>400</b> | <b>630</b> | <b>1000</b> |
| Overload (Q <sub>4</sub> ):                      | m <sup>3</sup> /h      | 31.25     | 50        | 78.8      | 125        | 200        | 313        | 500        | 788        | 1250        |
| Dynamic range (Q <sub>3</sub> /Q <sub>1</sub> ): |                        | R40       | R40       | R40       | R40        | R40        | R40        | R40        | R25        | R25         |
| <b>Additional flow data</b>                      |                        |           |           |           |            |            |            |            |            |             |
| Starting flow:                                   | m <sup>3</sup> /h      | 0.25      | 0.3       | 0.35      | 0.6        | 1.1        | 2          | 4          | 8          | 15          |

### Pressure drop characteristics



### Sizing

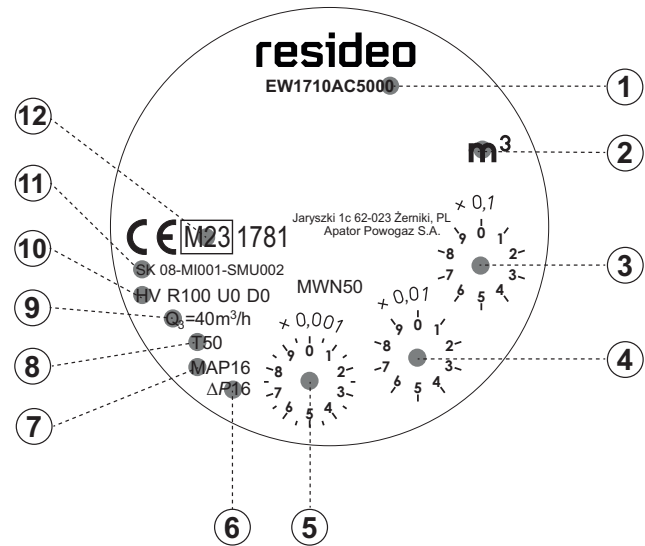
- EW171 Series water meters must be selected in such a way that typical system flow rates are between transition ( $Q_2$ ) and permanent flow rate ( $Q_3$ )
- The flow rate may not drop below minimum ( $Q_1$ ) or exceed overload flow rate ( $Q_4$ ) at any time

Communication and Readout

EW171 Series water meters can be fitted with clip-on modules for remote readout applications.

The clip-on modules are retrofittable and are attached by means of a standardised design which is identical for all sizes DN50...300. Mounting of the modules does not affect approval of the meter.

Front Panel Contents

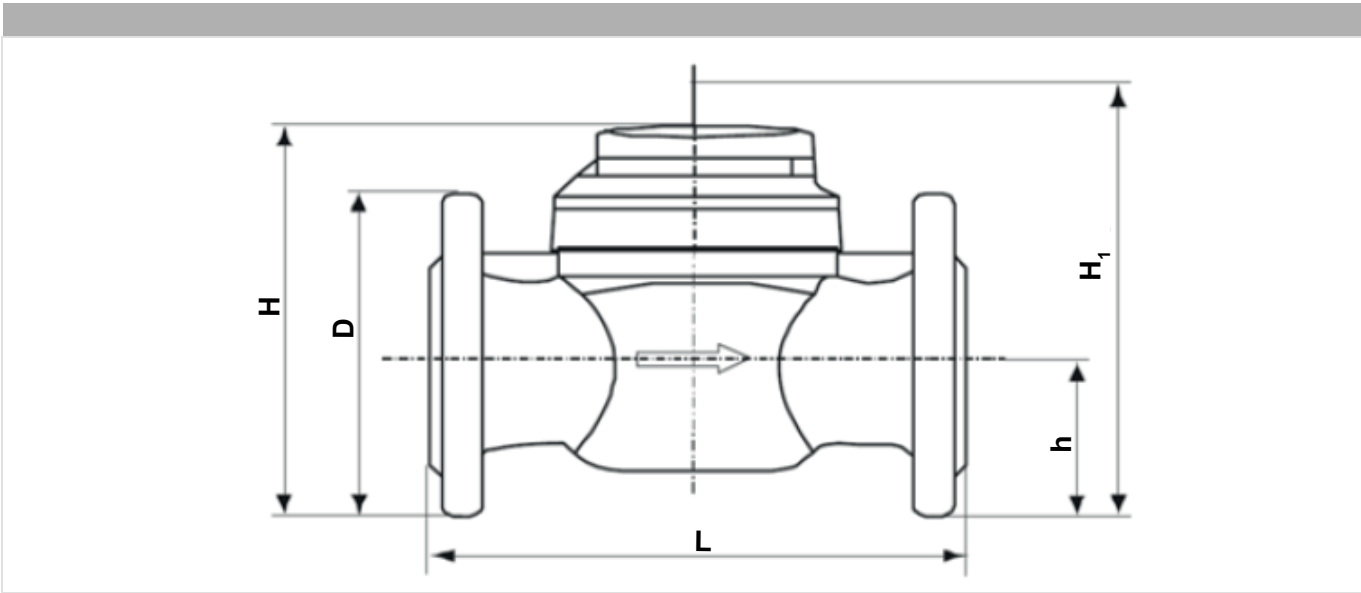


The following modules are available:

- Wired M-Bus, according to EN13757-3
- Pulse output, open collector

| Number | Element                                       |
|--------|-----------------------------------------------|
| 1      | Item No.                                      |
| 2      | Unit                                          |
| 3      | 0.1 x unit dial                               |
| 4      | 0.01 x unit dial                              |
| 5      | 0.001 x unit dial                             |
| 6      | Differential pressure at nominal flow         |
| 7      | Maximum static pressure                       |
| 8      | Temperature class                             |
| 9      | Permanent flow Q3                             |
| 10     | Dynamic range / flow profile resistance class |
| 11     | Approval number                               |
| 12     | CE mark                                       |

Dimensions



| Parameter              |    | Values |     |     |     |     |     |     |     |     |  |
|------------------------|----|--------|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Nominal size diameter: | DN | 50     | 65  | 80  | 100 | 125 | 150 | 200 | 250 | 300 |  |
| Dimensions:            | L  | 200    | 200 | 225 | 250 | 250 | 300 | 350 | 450 | 500 |  |
|                        | H  | 187    | 197 | 219 | 229 | 257 | 357 | 382 | 427 | 497 |  |
|                        | H1 | 287    | 297 | 239 | 349 | 377 | 582 | 607 | 652 | 722 |  |
|                        | h  | 72     | 83  | 95  | 105 | 120 | 135 | 160 | 193 | 230 |  |
|                        | D  | 165    | 185 | 200 | 220 | 250 | 285 | 340 | 400 | 460 |  |
| Weight:                | kg | 10     | 11  | 14  | 16  | 18  | 40  | 51  | 75  | 103 |  |

Note: All dimensions in mm unless stated otherwise.  
Height H1 = space required for removal of measuring insert

Ordering Information

The following tables contain all the information you need to make an order of an item of your choice. When ordering, please always state the type, the ordering or the part number.

Options

| Item:                                          | DN size: | Permanent flow Q <sub>3</sub> : | Length: | Item No.:    |
|------------------------------------------------|----------|---------------------------------|---------|--------------|
| EW1710A<br>Bulk water meters<br>for cold water | 50       | 40 m <sup>3</sup> /h            | 200 mm  | EW1710AC5000 |
|                                                | 65       | 63 m <sup>3</sup> /h            | 200 mm  | EW1710AC5600 |
|                                                | 80       | 100 m <sup>3</sup> /h           | 225 mm  | EW1710AC6500 |
|                                                | 100      | 160 m <sup>3</sup> /h           | 250 mm  | EW1710AC7300 |
|                                                | 125      | 250 m <sup>3</sup> /h           | 250 mm  | EW1710AC8100 |
|                                                | 150      | 400 m <sup>3</sup> /h           | 300 mm  | EW1710AC8500 |
|                                                | 200      | 630 m <sup>3</sup> /h           | 350 mm  | EW1710AC8900 |
|                                                | 250      | 1000 m <sup>3</sup> /h          | 450 mm  | EW1710AC9100 |
|                                                | 300      | 1600 m <sup>3</sup> /h          | 500 mm  | EW1710AC9200 |
| EW1711A<br>Bulk water meters<br>for warm water | 50       | 25 m <sup>3</sup> /h            | 200 mm  | EW1711AC5000 |
|                                                | 65       | 40 m <sup>3</sup> /h            | 200 mm  | EW1711AC5600 |
|                                                | 80       | 63 m <sup>3</sup> /h            | 225 mm  | EW1711AC6500 |
|                                                | 100      | 100 m <sup>3</sup> /h           | 250 mm  | EW1711AC7300 |
|                                                | 125      | 160 m <sup>3</sup> /h           | 250 mm  | EW1711AC8100 |
|                                                | 150      | 250 m <sup>3</sup> /h           | 300 mm  | EW1711AC8500 |
|                                                | 200      | 400 m <sup>3</sup> /h           | 350 mm  | EW1711AC8900 |
|                                                | 250      | 630 m <sup>3</sup> /h           | 450 mm  | EW1710AC9100 |
|                                                | 300      | 1000 m <sup>3</sup> /h          | 500 mm  | EW1710AC9200 |

Scope of Delivery

- EW171 Series water meter
- Installation and setup instructions

Accessories

|                                                                                     | Description                                                                                                                                                                                                                                                                                                                                                   | Dimension | Item No.     |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|
|  | <b>EWA171</b><br><b>Clip-on modules, suitable for all EW171</b><br><small>Note: Programming of M-Bus module EWA171C-MBUS is required when used for sizes DN150 or larger. Programming is done via the M-Bus master using software tool EWASET-MBUS which can be downloaded from <a href="https://homecomfort.resideo.com">homecomfort.resideo.com</a></small> |           |              |
|                                                                                     | Wired M-Bus                                                                                                                                                                                                                                                                                                                                                   |           | EWA171C-MBUS |
|                                                                                     | Pulse output                                                                                                                                                                                                                                                                                                                                                  |           | EWA171C-PO   |
|                                                                                     | <b>Software</b><br>Software is available free of charge for download from <a href="https://resideo.com">resideo.com</a>                                                                                                                                                                                                                                       |           |              |
|                                                                                     | For Programming of M-Bus modules                                                                                                                                                                                                                                                                                                                              |           | EWASET-MBUS  |
|                                                                                     | For Programming of pulse out modules                                                                                                                                                                                                                                                                                                                          |           | EWASET-PO    |



For support contact:  
Ademco 1 GmbH, Hardhofweg 40,  
74821 MOSBACH, GERMANY  
Phone: +49 6261 810

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